

Notice of Allowability

Application No.	Applicant(s)
10/713,615	DEWBERRY ET AL.
Examiner	Art Unit
Nader Bolourchi	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 11/14/2003.
2. The allowed claim(s) is/are 1-3, 5-43, and 45-52, which is renumbered as 1-3, 4-42, and 43-50, respectively.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 8/19/2004
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
Paper No./Mail Date 20070809
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.


DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER

Continuation of Substance of Interview including description of the general nature of what was discussed:

(1) Applicant was advised that Independent claims 30 and 47 and their dependent claims 31-40 and 48-52) would be allowed based on discussion of limitation "ratchet code sequence"

(2) Prior art US 6,151,353 was discussed for rejection of independent claims 53, 60, 67 and their dependent claims 54-59, 61-66, and 68-72 respectively.

(3) The prior art also discussed for rejection of independent claims 1 and 41 and their dependent claims 2-29 and 42-46. However Applicant was advised that, if limitation of claim 4 is amended to claim 1, then resulting amended claim 1 as well as its dependent claims would be allowable. Applicant was also advised that if limitation of claim 44 is amended to claim 41, then resulting amended claim 44, as well as its dependent claims would be allowable.

it was agreed that claims 53-72 to be cancelled without prejudice or disclaimer. Furthermore, it was agree that claim 1 and 41 to be amended by examiner amendment to include limitation of claims 4 and 44, respectively, and cancelling claims 4 and 44 and case to be allowed based on "ratchet code sequence" as the reason for allowance.

DETAILED ACTION

Remarks

1. As per Examiner's Amendment, claim 1 is amended to include the limitations recited in claims 4.
2. As per Examiner's Amendment, claim 41 is amended to include the limitations recited in claims 44.
3. As per Examiner's Amendment, claims 4, 44, and 53-72 are cancelled without prejudice or disclaimer.

Priority

4. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 8/19/2004 have been considered and made of record by the examiner.

Examiner's Amendment

6. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

7. Authorization for this examiner's amendment was given in a telephone interview with Robert S. Babayi, Attorney for Applicants, Reg. No. 33,471, on 8/1/2007.

8. The application is amended as follows:

➤ Claims 1 and 41 is amended as follow:

1. A method for acquisition of a received pulse position modulated impulse signal packet including a plurality of repeating short acquisition code sequences, the repeating short acquisition code sequences each defined by a short acquisition code, the method comprising the steps of:

- a. sampling the received signal at a plurality of times in accordance with the short acquisition code, an acquisition code offset, and a frame time offset to produce a sequence of samples corresponding to the acquisition code offset;
- b. accumulating the sequence of samples to produce a ramp value corresponding to the acquisition code offset;
- c. concurrently performing steps (a.) and (b.) for each of a plurality of different acquisition code offsets, thereby producing a plurality of ramp values each corresponding to one of the different acquisition code offsets;
- d. determining whether a threshold is satisfied based on the plurality of ramp values; and
- e. adjusting the frame time offset and repeating steps (a.) through (d.)

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using the adjusted frame time offset if the threshold is not satisfied;

wherein the received impulse signal packet

includes at least one ratchet code sequence following at last one of the plurality of repeating short acquisition code sequences, wherein the at least one ratchet code sequence is defined by a ratchet code, and wherein each ratchet code sequence is greater in length than each repeating short acquisition code sequence, the method further comprising the following steps after the threshold has been satisfied:

f. sampling the received signal at a plurality of times in accordance with the ratchet code and a code boundary, to produce a sequence of samples corresponding to the code boundary;

g. combining the sequence of samples to produce a ratchet ramp value corresponding to the code boundary;

h. concurrently performing steps (f.) and (g.) for each of a plurality of different code boundaries, thereby producing a plurality of ratchet ramp values each corresponding to one of the different code boundaries; and

i. determining whether a ratchet threshold is satisfied based on the plurality of ratchet ramp values; and

j. repeating steps (f.) through (i.) if the ratchet threshold is not satisfied, wherein code synchronization to the length of the ratchet code is achieved when the ratchet threshold is satisfied.

41. A system for acquiring a received pulse position modulated impulse signal including a repeating short acquisition code sequence, comprising:

- a plurality of correlators,
- each correlator adapted to sample the received signal according to (i) the short acquisition code sequence, (ii) a frame time offset, and (iii) a different one a plurality of code offsets,
- the plurality of correlators thereby producing a plurality of sequences of samples,
- each sequence of samples corresponding to a different one of the plurality of code offsets;
- a plurality of accumulators,
- each accumulator adapted to accumulate one of the plurality of sequence of samples,
- the plurality of accumulators thereby adapted to output a plurality of ramp values,
- each ramp value corresponding to one of the plurality of code offsets;
- a threshold detector adapted to determine whether a threshold has been satisfied based on the plurality of ramp values; and
- a frame time offset adjustor adapted to adjust the frame time offset when the threshold has not been satisfied;

wherein the received impulse signal packet
includes at least one ratchet code sequence following at last one of the

plurality of repeating short acquisition code sequences, wherein the at least one ratchet code sequence is defined by a ratchet code, and wherein each ratchet code sequence is greater in length than each repeating short acquisition code sequence, the system further comprising the following after the threshold has been satisfied.

9. Claims 4, 44, and 53-72 are cancelled.

Allowable Subject Matter

10. Claims 1-3, 5-43, and 45-52 are allowed.

11. The following is an examiner's statement of reasons for allowance:

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Harrison et al. (US 6,151,353). However, prior arts of record do not teach one ratchet code sequence following at least one of the plurality of repeating short acquisition code sequences, wherein the at least one ratchet code sequence is defined by a ratchet code, and wherein each ratchet code sequence is greater in length than each repeating short acquisition code sequence.

More specifically, the prior arts of record fail to teach or suggest in combination, the steps of

- "a. sampling the received signal at a plurality of times in accordance with the short acquisition code, an acquisition code offset, and a frame time offset to produce a sequence of samples corresponding to the acquisition code offset;
- b. accumulating the sequence of samples to produce a ramp value corresponding to the acquisition code offset;
- c. concurrently performing steps (a.) and (b.) for each of a plurality of different acquisition code offsets, thereby producing a plurality of ramp values each corresponding to one of the different acquisition code offsets;
- d. determining whether a threshold is satisfied based on the plurality of ramp values; and
- e. adjusting the frame time offset and repeating steps (a.) through (d.) using the adjusted frame time offset if the threshold is not satisfied;" in combination with "the received impulse signal packet includes at least one ratchet code sequence following at last one of the plurality of repeating short acquisition code sequences, wherein the at least one ratchet code sequence is defined by a ratchet code, and wherein each ratchet code sequence is greater in length than each repeating short acquisition code sequence, the method further comprising the following steps after the threshold has been satisfied:
- f. sampling the received signal at a plurality of times in accordance with the ratchet code and a code boundary, to produce a sequence of samples corresponding to the code boundary;

g. combining the sequence of samples to produce a ratchet ramp value corresponding to the code boundary;

h. concurrently performing steps (f.) and (g.) for each of a plurality of different code boundaries, thereby producing a plurality of ratchet ramp values each corresponding to one of the different code boundaries; and

i. determining whether a ratchet threshold is satisfied based on the plurality of ratchet ramp values; and

j. repeating steps (f.) through (i.) if the ratchet threshold is not satisfied, wherein code synchronization to the length of the ratchet code is achieved when the ratchet threshold is satisfied." in order to form "a method for acquisition of a received pulse position modulated impulse signal packet including a plurality of repeating short acquisition code sequences, the repeating short acquisition code sequences each defined by a short acquisition code", as recited in claim 1, and some variation of wording as recited in claims 30, 41, and 47, and further limitation of their respective dependent claims 2-3, 5-29, 31-40, 41-43, 45-46, and 48-52.

12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nader Bolourchi whose telephone number is (571) 272-8064. The examiner can normally be reached on M-F 8:30 to 4:30.
14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David. C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

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David Payne
DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER